

arrangement applicable to all the notes and adapted to obtain two different notes with the same hole, one of which is an octave higher.

5 As may be seen, by way of example, the hole which should give C sharp is covered by two plates one 70 of which, covering the hole directly, is perforated with a central aperture 71 of fixed size; 10 the other plate 72 is solid and entirely overlaps the plate 70. These plates or cups are attached in the usual way to key barrels 73 and 74. When the plate 70 is operated by a suitable control, it will be 15 understood that the two cups 70 and 72 will be raised simultaneously and the note C sharp will be emitted, whilst if harmonics are caused by the customary system, only the plate 72 is operated, this 20 latter alone will be raised, the plate 70 remaining on the hole, so that the central aperture 71 will give the note C sharp modified but at the octave above that given by the hole when entirely freed by 25 the raising of both plates.

As already stated this arrangement is applicable not only to a hole giving a certain note but may be extended to all the holes provided on the body of the 30 instrument.

Furthermore a new improvement is shown in Fig. 10, which consists in obtaining mechanically an arrangement by which there is only one hole closed 35 at most below the hole by which the note is emitted.

A head 80 is located at the end of an arm 81 attached to a key barrel 82. This key barrel is connected by means of a 40 bridge piece 83 with a key barrel 84 attached to the same spindle as the key barrel 82. The key barrel 84 carries a cup 85 kept raised, as well as the head 80, which operates it, through the action 45 of a needle spring located under the key barrel 84. The result is that by pressing upon 80, the open cup 86 located under the head 80 is closed; the cup 86 may also be closed by the action of the finger upon 50 the head 87 which is soldered on the cup 88. The cup 86 is as usual soldered on the key barrel 87 attached to the same spindle as the key barrels 81 and 84. An arm 88 is soldered on this key barrel 87. 55 The arm 88 under the pressure exerted by the finger, either upon the heads 80, 87 or 89, raises a bridge-piece 90, soldered on the one hand as fulcrum on the key barrel 91 and on the other hand on the 60 key barrel 92 attached to the same spindle as the key barrels 84, 91, 82, 87.

Upon the key barrel 92 is soldered the cup 93, kept raised by means of a needle spring located under the key barrel 92. 65 The cup 94 attached to the key barrel 95

is kept open by means of a needle spring located under this key barrel. To the key barrel 95 is fixed an arm 96; when the cup 94 is depressed, the arm 96 presses against the bridge piece 90 and raises it. 70

It follows from the system described that by pressing on one of the heads 89, 87, 80, 97 the cup 93 is closed whilst leaving each of these cups with its own independence. A head 97 is soldered on 75 the cup 94.

The arm 100 is as usual operated by a spur 101 constituting a part of the G cup 93; so that on depressing either separately or together one of the cups of the right 80 hand 85, 88, 86, 94 (which, as has been seen, operates the cup 93) one presses upon the arm 100. This latter is soldered on a key barrel 102, on which is also soldered a bridge piece 103, connecting the key 85 barrel 102 with the key barrel 104 attached to the same spindle as the key barrel 102, upon which is soldered the cup 105. This cup 105 is attached to the arm 106 which has a notch 107 at its 90 other end, against which abuts the end of a bridge piece 108, pivoting, on the one hand by the arm 109 and on the other hand by the arm 110 soldered to the key barrel 111, about the same spindle 112 95 about which also pivot the key barrel 102, the bridge-piece 103 and the key barrel 104. Upon the key barrel 111 is soldered the cup 113 so that by pressing upon the arm 100 the cup 105 is closed by the inter- 100 mediary of the first bridge-piece 103, and the cup 113 by the intermediary of the second bridge-piece 108.

Under the arm 114, which connects the cup 113 with the key barrel 111 is located 105 the end of a bridge-piece 115 pivoting on the spindle 112, by means of the arm 116 and the arm 117 upon which is soldered the C sharp cup 68 so that on pressing upon the cup 113 the C sharp cup 68 is 110 closed.

On examining what has been described above, it will be noticed that by pressing upon one of the cups, 85 for example, one hole in two—beginning with the 115 upper C sharp—is closed, that is to say, that the cups 68, 113, 105, 93, 86, 85 when they are open, will be closed by pressing upon the cups, which are located behind them going towards the flare of the 120 instrument.

The cup 118 attached to the key barrel 119 is connected by a bridge piece 120 with a key barrel 121 upon which is attached the G plate 122, so that the cup 125 118 is controlled by the G plate 122. When the arm 106 is raised the bridge-piece 120 abuts against it so that the head of G 122 operates simultaneously the cup 105 and the cup 118. 130